PMC-2520B/2540B/2550B

Step Motor Driver

User's Manual (V1.1)

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Correction record

Version	Record
1.1	Add PMC2550B

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1 Features

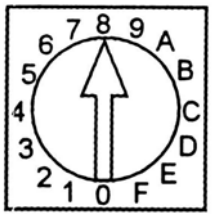
1.1 High torque and heavy load design
1.2 PWM constant current source
1.3 Full/ Half step selection
1.4 Build in overheat protection
1.5 Build in auto power down mode

2 Specifications

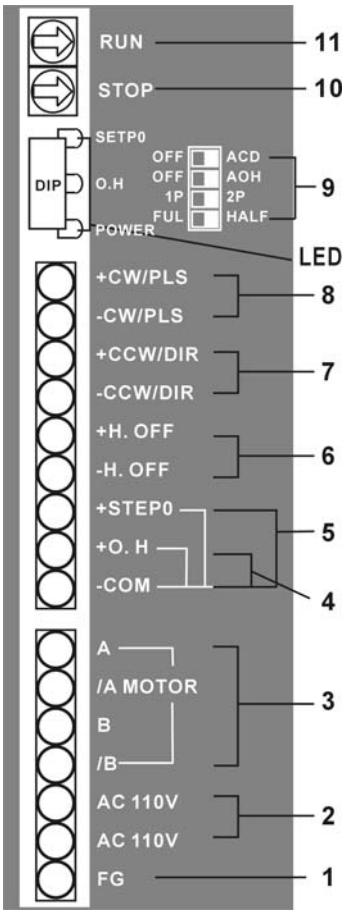
Model	PMC-2520B	PMC-2540B	PMC-2550B
Driving Mode	PWM Switching, Bipolar with Constant Current Driving		
Maximum Current	2A/Phase	4A/Phase	5A/Phase
Resolution	Full Step : 1.8° /per step, Half Step : 0.9° /per step		
Input Signal	Optically isolated, Voltage : H : +4V ~ + 24V, L : +0 ~ +5V. Resistance 220Ω, Current Under 20mA. CW and CCW Pulse Signal : Pulse Width : Above 5μSec. Direction Signal : LOW for CW, HIGH for CCW. Holding Current OFF Signal : HIGH for Release Holding.		
Output Signal	Photo-Coupler Open Collector. Voltage : Under 24V, Current : Under 15mA. Step 0 Signal Overheat Signal		
DIP Selectors	Auto-Current-Down Auto-Over-Heat Protection 1P / 2P signal Input Method Selector Full/Half Step Selector		
LED Indicators	Step 0 Status LED Over-Heat Alarm LED Power LED		
Operation Temperature	0 ~ 45℃		
Operation Humidity	< 85% RH		
Power source	110 VAC ±10%, 60Hz		
Dimension	158mm(L) x 130mm(W) x 52mm(H)		
Weight	770g		

3 I/O Functions

DIP Selectors



Current Selectors



1- frame ground
2- 110V AC power inputr
3- output to step motor
4- over heat signal out
5- STEP0(excitation phase 0) signal out
6- input of Holding Current Off
7- CCW/DIR input
  - CCW for dual pulse mode
  - DIR for single pulse mode

8- CW/PLS input
  - CW for dual pulse mode
  - PLS for single pulse mode

9- User option mode
  - ACD, auto current down

Auto current down while no pulse in. Use this function to reduce the heat of step motor, but if you need to hold the torque while stand by , switch off to disable this function

  - AOH, auto overheat protection

    Switch on to enable the auto overheat protection. While the driver case reaches 80 degree C, the AOH circuit will stop the driver and activate the AOH led.

  - 1P /2P mode
    - 1P mode: Pulse (PLS) and direction (DIR) controls the motion operation.
    - 2P mode: Clockwise(CW) and counter- clockwise(CCW) controls the motion operation.
  - FULL/HALF step mode
    - FULL step: 1.8 degree per step
    - HASLF step : 0.9degree per step

10- STOP current adjustment

Only valid for ACD is enabled. While ACD function enabled and the pulse train is stopped for more than 0.5s, the motor current will decrease to the adjustment value.

11- RUN current adjustment

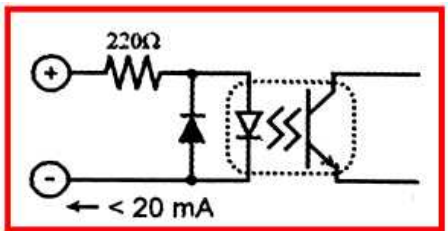
Motor current while running.

4 LED indicator

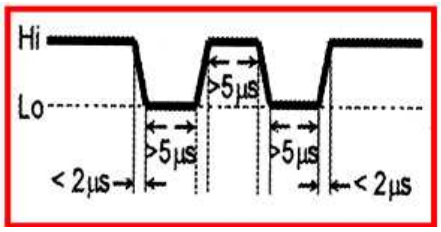
4.1 POWER: green LED, power OK will light.
4.2 O.H.: red LED, light for over heat while AOH is enabled.
4.3 STEP 0: yellow LED, light for excitation phase 0, in full step mode, it will light every 4 steps and for half step mode every 8 steps.

5 Control signal

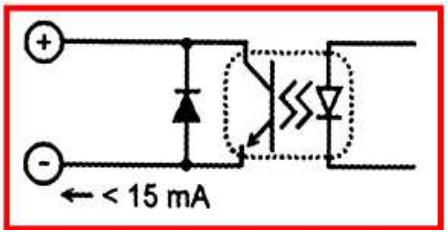
5.1 The control signal is isolated by photo-isolator and the external signal transit state from HIGH to LOW will drive one step.
5.2 The minimum pulse width is 5 micro second, the transition time is less than2 micro second.
5.3 The input voltage range is from 5VDC to 24VDC and the current must limit to under 20ma.
5.4 The driver output signal is limited to under 15ma.



Input Signal circuit



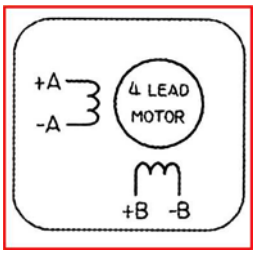
Pulse Width Diagram



Output Signal circuit

6 Wiring diagrams

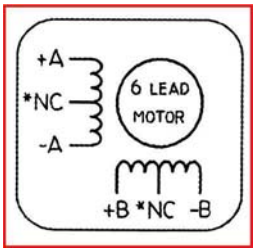
6.1 4 Leads



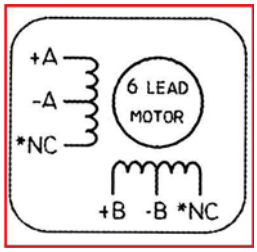
4 Leads

*NC = Not connected to anything

6.2 6 Leads



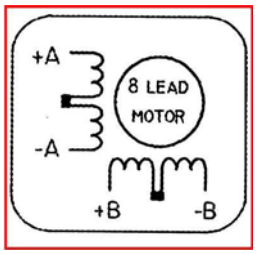
6 Leads
Series Connected



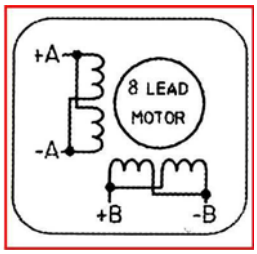
6 Leads
Center Tap Connected

*NC = Not connected to anything

6.3 8 Leads



8 Leads
Series Connected



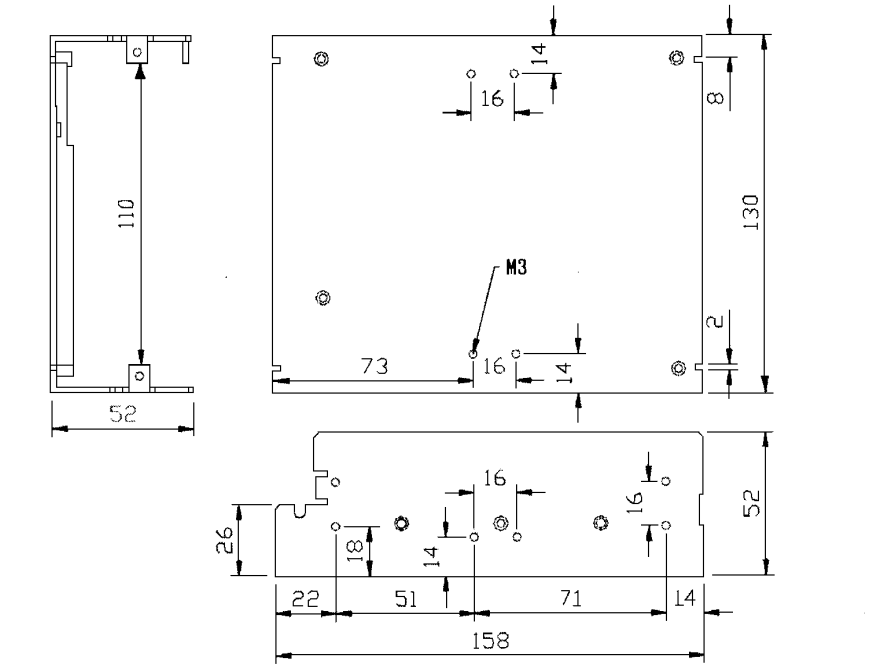
8 Leads
Parallel Connected

*NC = Not connected to anything

Notes on wiring:

*Be sure to power off while motor is being wired.
*Wrong wiring or wire may damage the driver.
*The external force cooling is required, if you the driver case temperature is higher than 55 degree C at normal operation.
*Please use the driver at good ventilation environment.
*Please do not use the driver at wet or the environment may have condensed water.

7 Dimension



Approx. Current Adjustment and Auto current down % List

⇩	2520B	2540B	ACD%
0	0.23A	0.56A	015%
1	0.26A	0.70A	021%
2	0.40A	0.90A	026%
3	0.50A	1.20A	032%
4	0.66A	1.40A	038%
5	0.80A	1.52A	043%
6	0.89A	1.66A	049%
7	1.05A	1.86A	055%
8	1.10A	2.10A	060%
9	1.31A	2.32A	066%
A	1.43A	2.54A	071%
B	1.61A	2.80A	077%
C	1.73A	3.10A	083%
D	1.86A	3.40A	088%
E	2.00A	3.70A	094%
F	2.14A	4.00A	100%